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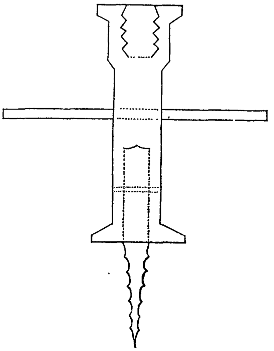
country will freely coöperate with microscopists attaining this very desirable result. The introduction already partially accomplished, of a grading of the eye-pieces by comparison with equivalent single lenses, 2in., 1 in., ½ in., etc., may render this part of the subject, which seemed almost unattainable, the easiest and first to be accomplished. The remarks on the subject of powers will be given in a future number of the NATURALIST.

ON A NEW MICRO-TELESCOPE.—BY PROF. R. H. WARD.

THIS is designed especially for travelling and field use, but applicable to some of the daily work of the microscopist. It consists of a stand and accessories as follows: (A) An ordinary Tank Microscope having the body focussed by a rack and clamped at any desired height upon a stand like that of the bull's eye condensers. Probably few naturalists have any suspicion of the real usefulness of this little piece of apparatus, not only in the study of objects living in an aquarium or preserved in alcohol, glycerine, etc., but for the hasty inspection of herbarium specimens permanently fastened upon sheets of paper too large for the stage of an ordinary microscope, and for the preliminary examination of objects in jars, boxes, dissecting troughs, etc. The writer always keeps upon his working table such an instrument carrying a double nose-piece (the crooked form) and usually one-inch and three-inch objectives, and uses it continually and with great satisfaction as a substitute for a simple microscope. The brass foot-plate at the bottom of the upright pillar should be made somewhat larger and heavier than usual. (B) A Stage of convenient size and simple construction, sliding upon the upright pillar and capable of being clamped securely in any position. This stage carries a diaphragm and mirror below and stage forceps above, and enables the instrument to be used as a vertical compound microscope for ordinary work when, as in travelling or on a field-day, no more commodious stand may be available. This combination may also be used as a dissecting microscope, though for that purpose it is greatly preferable to use the Tank Microscope as a magnifier only, and to place the object, if opake, on the table, or if transparent, on the stage of any good dissecting microscope that may be within reach. (C) A Draw Tube sliding over the compound body from below, and capable of being fastened by a bayonet catch to the brass-work through which the compound body is moved by the rack. The objective in the compound body now acts as an erector, and another is to be screwed, by means of a large adapter, into the lower end of the Draw Tube, to act as the objective.

The rack-movement now only varies the power, and may be thus used as a fine adjustment, while the coarse adjustment must be gained by moving the whole instrument. This combination is extremely useful for dissecting, its greatest misfortune being that it is a monocular arrangement. (D) A Telescopic Object Glass of one inch linear aperture and four inch solar focus, to be screwed, instead of the objective, into the bottom of the Draw Tube. To this Object Glass the compound body with its eye-piece and objective acts as an erecting eye-piece, and is focussed by means of its rack-movement. This combination gives a telescope of good working qualities, and of power entirely disproportioned to its size. (E) A brass Pillar (Fig. 110) about two inches long, having a steel transverse bar for a handle, and at its lower end a gimlet-screw to be fastened into a tree, post, or board. Into its upper end may be screwed the upright pillar of the Tank Microscope. The gimlet screw may be made of steel, which is somewhat durable, or a common iron screw may be used, which easily wears out but can be replaced at a nominal expense. This fixture adapts the instrument to field use, as a microscope or telescope.

Fig. 110.



This instrument should be furnished with a compressor and two objectives,—a one-inch and a two-inch, two-thirds inch, one-half inch, or four-tenths inch, according to the wants of the owner. Either of these objectives may be used as an erector, though the higher ones will seldom be preferred for this purpose. The four or five inch objective usually furnished with tank microscopes may well be dispensed with, as its effect is easily gained by means of the erecting arrangement. Microscopists who have laid aside the ordinary "erector" of the shops as an entirely unsatisfactory affair, need not, on that account, expect a similar failure in the use of a good one-inch or two-inch objective as an erector.

The cost of this instrument ought not to be large. It should not exceed sixty or seventy dollars to those already supplied with objectives and compressors, or one hundred dollars, complete.

THE following papers were also read in the Subsection of Microscopy:

Report on Photographing Histological Preparations by Sunlight.—By Dr. J. J. WOODWARD.
Remarks on a new form of Achromatic Condenser.—By Mr. E. BICKNELL.

Remarks on recent improvements in Achromatic Condensers.—By Prof. R. H. Ward.
On the use of the Microscope in Chemical Analysis.—By Prof. P. H. Vander Weyde.
On the observation of the Electric Induction Spark by the Micro-spectroscope.—By Prof. P. H. Vander Weyde.
On Oblique Microscopic Illumination, and a new simple Apparatus for the same.—By Prof. P. H. Vander Weyde.
On some observed changes in Vorticella.—By Mr. A. H. Tuttle.
On a Standard of Powers for Microscopical Objectives and Eye Pieces.—By Prof. Ward.
On the Microscopic Structure of Eozoon Canadense.—By Mr. E. Bicknell.

GENERAL OFFICERS OF THE INDIANAPOLIS MEETING.

President, Prof. Asa Gray of Cambridge; *Vice President*, Prof. G. F. Barker of New Haven; *Permanent Secretary*, Prof. Joseph Lovering of Cambridge; *General Secretary*, F. W. Putnam, A.M., of Salem; *Treasurer*, Wm. S. Vaux, Esq., of Philadelphia; *Standing Committee* present:—Messrs. Gray, Barker, Lovering, Putnam, Hunt, J. L. Smith, Swallow, Hall, J. E. Hilgard, Winchell, Cox, Lapham.

One hundred and seven papers were entered, of which thirty-two were read in full in Section B, and eleven by title; ten were read in Subsection of Microscopy; thirty in full in Section A, and seven by title; two in the General Session; and fifteen were not entered on the daily programmes.

The first morning (Wednesday, Aug. 16) was given to organization, the work of the sections commencing in the afternoon. In the evening the retiring president, Dr. Hunt, gave his address, and resigned the chair to the president elect. Friday and Saturday were given to the excursion to the coal field of Clay county, and to Terre Haute, where the Association was most cordially welcomed. The town of Brazil also welcomed the Association on the trip to the coal field, which with several other cordial greetings, extended either to the Association as a body, or to small numbers of its members, evinced the hearty appreciation in which the objects of the Association were held by the inhabitants of Indiana. The local secretary, Prof Cox, the officers at the State House, and citizens who took a part in the reception, have left the Association in debt to them for their untiring efforts and generous welcome.

Of the Mammoth Cave and the Ancient Mounds on the Wabash, visited after the adjournment, we shall have papers in future numbers.

The invitation to hold the next meeting in San Francisco was renewed by letter from the Board of Trade and the Academy of Sciences, and was accepted provided the necessary arrangements could be made.

The invitation from Dubuque was accepted conditionally to that of San Francisco. Invitations to hold future meetings of the Association in the following cities were received: Pittsburg, St. Louis, Ann Arbor, and Leavenworth.

A Committee on the Geological Survey of Missouri, and one relating to Observations to be made at Niagara Falls, were appointed.

OFFICERS ELECTED FOR THE MEETING OF 1872.

President, Prof. J. Lawrence Smith of Louisville; *Vice President*, Prof. Alex. Winchell of Ann Arbor; *Permanent Secretary*, Prof. Joseph Lovering of Cambridge; *General Secretary*, Prof. E. S. Morse of Salem; *Treasurer*, Wm. S. Vaux, Esq., of Philadelphia; *Auditing Committee*, Dr. H. Wheatland of Salem and Professor H. L. Eustis of Cambridge; *Standing Committee Ex Officio*, Messrs. Smith, Winchell, Lovering, Morse, Vaux, Gray, Barker, Putnam.

Committee from the Standing Committee to arrange for next meeting: Profs. J. L. Smith, Asa Gray, Joseph Lovering, in connection with a committee from the Association at large, consisting of Profs. J. L. Smith, J. D. Whitney and O. C. Marsh.

The Association adjourned on Tuesday night, August 22d.